

There are four claws, or phalangeal bones of the fore-foot of a small-sized individual: in general form these bones approach nearest to those of the *Orycteropus*.

There are two tibiæ belonging to different individuals of different sizes: one is ten inches five-tenths in length, the other ten inches. This is a short, thick and strong bone. Its upper articulating surface is nearly a circular concave disc. Its lower anterior extremity is marked by a peculiar deep ovoid depression or hollow, for the reception of a corresponding hemisphere, projecting upwards from the astragalus, forming together a structure of joint altogether unique. The motions of the ankle joint were rotatory, but the articulating surface of the lower aspect of the astragalus admitted of ginglymous motion with the os calcis.

The clavicle and ribs, portions of which only exist, are not distinguished by any remarkable characters: but the foramen for the passage of the spinal marrow, in the vertebræ, is exceedingly small, an unaccountable feature in a skeleton, which in all other respects demonstrates great physical strength as one of its most remarkable characteristics.

The portion of sternum belonged most probably to the largest of the three individuals; the animal being apparently less than the *Megatherium*, and larger than the *Megalonyx*.

Dr. Harlan proposes to name this animal "*Orycterotherium Missouriense*."

## MISCELLANEOUS.

### LYMPH-GLOBULES OF BIRDS.

It is well known that the blood of vertebrate animals contains, besides the red discs, a few pale globules, which have commonly been regarded as those of lymph. But in birds I have found that the majority of the globules of the juice of the lymphatic glands are rather smaller than the pale globules of the blood, and the same fact is observable in mammals; yet the descriptions since Hewson's time of the lymph-globules of birds have always been drawn from the pale globules of their blood.

This distinguished man states that the particles of the fluid of the lymphatic glands of birds are oval, like the nuclei of their blood-corpuscles. In the 'Phil. Mag.' for February 1840, I described the lymph-globules of the Napu Musk Deer as hardly differing from those of Man, although the blood-discs of this little ruminant, as I had discovered and described in November 1839, are the smallest yet known; and although the *Camelidæ* have oval blood-discs, I found that the globules in the juice of the thymus and of the lymphatic glands, and of the pus of these animals, had the usual circular figure and nearly the same size as the corresponding globules of other Mammalia. [See Med. Chir. Trans. vol. xxiii.] It was to be expected, therefore, that the lymph-globules of birds would have a similar form; and such is the case, as I have lately ascertained. In a few instances from one

to five of the globules were enclosed with granular matter in a cell. The following table exhibits, in fractions of an English inch, the average size of the lymph-globules of birds. For the numerous measurements from which these averages are deduced, the original observations may be referred to.

|  |                  |
|--|------------------|
| Columba Livia, <i>Briss.</i> . . . . .       | $\frac{1}{3274}$ |
| Turdus musicus, <i>Linn.</i> . . . . .       | $\frac{1}{3090}$ |
| Gallus domesticus, <i>Briss.</i> . . . . .   | $\frac{1}{5261}$ |
| Strix flammea, <i>Linn.</i> . . . . .        | $\frac{1}{3227}$ |
| Ardea cinerea, <i>Lath.</i> . . . . .        | $\frac{1}{3150}$ |
| Corvus frugilegus, <i>Linn.</i> . . . . .    | $\frac{1}{3053}$ |
| —— monedula, <i>Linn.</i> . . . . .          | $\frac{1}{3238}$ |
| { —— Pica, <i>Linn.</i> . . . . .            | $\frac{1}{3001}$ |
| { Pale globules of the blood of the same . . | $\frac{1}{3555}$ |
| Fringilla Chloris, <i>Tem.</i> . . . . .     | $\frac{1}{4924}$ |
| —— domestica, <i>Linn.</i> . . . . .         | $\frac{1}{4682}$ |
| Emberiza Citrinella, <i>Linn.</i> . . . . .  | $\frac{1}{4572}$ |
| Sturnus vulgaris, <i>Linn.</i> . . . . .     | $\frac{1}{3152}$ |
| Garrulus glandarius, <i>Flem.</i> . . . . .  | $\frac{1}{4414}$ |

The difference in size between the white globules of the blood and the lymph-globules is considerable, as shown, for example, in the magpie (*Corvus Pica*); but the magnitude of the lymph-globules does not differ much in different birds, although these globules are generally slightly smaller than those of Mammalia.—*Mr. Gulliver's Contributions to Minute Anatomy*, London and Edinb. Philos. Magazine for June 1842.

#### SCARABUS CASTANEUS.

*To the Editors of the Annals of Natural History.*

GENTLEMEN,—In my paper entitled 'Monograph of the Genus *Scarabus*,' a small group of pectinibranchiate mollusks, published in No. 57 of your Journal, I noted, especially in speaking of the *Scarabus castaneus* of Lesson, that it was the only species I had not faithfully identified. I registered it as a species, relying solely upon a figure under that name in the 'Zoologie de la Coquille'; it appeared to me so characteristic and distinct from any other. It is therefore pleasing to me to be able to announce that I have lately discovered two unquestionable specimens of it in a collection of shells lately made by Richard Brinsley Hinds, Esq. in New Ireland, a rich and very remote portion of the globe, from whence we may yet expect much that is valuable and new.

This interesting series of shells was collected during a voyage of more than seven years in company with Lieut. Capt. Belcher, a gentleman well known in the conchological world for his zeal and great practical ability in knowing exactly how and where to dredge for good shells.

It would perhaps be considered premature to speculate upon what

shells may have been brought home by Capt. Belcher himself; it is a satisfaction, however, to know that they are in good hands, and we only hope that the zoology of his expedition will be published in a style of elaborate illustration, equal to the 'Voyage de la Coquille' of Lesson, the 'Voyage de l'Astrolabe' of Quoy and Gaimard, or the 'Voyage dans l'Amérique Méridionale' of D'Orbigny. We are sadly behind our continental neighbours in this respect, and one can scarcely wonder at the very low ebb of conchological science in this country. If the labours of Mr. Cuming had been made the source of a national undertaking, what a glorious and important work would have been the result,—a light for all nations and a credit to our country in particular!

Yours, &c.,

August 20, 1842.

LOVELL REEVE.

ARCTIC TERN.

*To the Editors of the Annals of Natural History.*

GENTLEMEN,—I observe in the last number of the 'Annals of Natural History,' that Mr. Strickland reverts to the subject of the Arctic Tern, but as I do not doubt the correctness of that gentleman's observations as to the species he examined, further reply is unnecessary.

As a knowledge of the habits of animals is as essential to the naturalist as it is to be acquainted with their forms, my object in first addressing you on the subject was to correct what appeared to me to be an error as to the birds in question being on their way to the "northern regions." Though, no doubt, many of them do penetrate to the higher northern latitudes during the warmer months, yet as the tern in question appeared inland so exactly at the time when they usually take up their summer quarters, the true inference to be deduced therefrom seemed to be, that they were prevented reaching their accustomed haunts around our own shores by the strong gales which prevailed at the time.

It is not very easy at all times to distinguish between the *S. arctica* and *S. hirundo*, for some of the points relied on by ornithologists as specific may be sometimes observed in birds of the same flock, and may perhaps depend on age or sexual difference. The birds of the season are easily distinguished from the old ones by their gray heads, the black feathers never appearing till the birds are in full summer plumage.

I am, Sir, yours, &c.,

T. AUSTIN.

GALIUM CRUCIATUM.

From a paragraph in the last number of the 'Annals,' vol. ix. p. 519, it would appear that in consequence of the *Galium cruciatum* not being noticed in the 'Flora Hibernica,' it has hitherto been unknown as a native of Ireland; yet K'Eogh, who published in 1735, describes the plant under the English name 'Crosswort,' so minutely as not to admit of any mistake. Harris, who partially investigated the botany of the county of Down in 1743, enumerates the plant in

his catalogue, and gives the *identical habitat* where Dr. Hodges found it, and where I have annually for many years observed it growing.

Belfast, Aug. 13, 1842.

FRANCIS WHITLA.

*On a new species of Lagomys inhabiting Nepal.* By B. H. Hodgson, Esq., Resident at the Court of Nepal\*.

Two fine specimens, male and female, lately received from Gossainthan, enable me to add the genus *Lagomys* to the Catalogue of Nepalese Mammals; and it may be remarked as characteristic of the enormous and sudden inequalities of elevation proper to this kingdom, that the tropical genus *Rhizomys*, and the arctic genus *Lagomys*, have been taken within forty miles of each other.

The specimens of the latter genus just procured by me were shot by my hunters on the margin of the sacred lake whence the Trisal Ganga River issues, and close to the verge of perpetual congelation. There were but a pair, of which both were obtained, as they moved about in the vicinity of the small natural cavity or rocky fissure that formed their abode. Their stomachs were full of fresh vegetable matter, like the contents of a hare's belly; nor was there near their abode any evidence of the hoarding propensities of the genus, or of a habit of digging for food. The height of the summer being the season at which the animals were taken, may explain the former circumstance however, but not the latter; and though it is said that these rat-hares dig for their food occasionally, I fancy this must be a mistake.

My species appears to be nearly allied to *Roylii*, and possibly may be identical, but I think not. The male of the pair is seven inches long from snout to vent, and the female half an inch less. The general appearance of the species is that of a guinea-pig, but the natives of India, who know no such animal, liken it to a rat; and as its Leporine teeth and soles (of the feet) are not obtrusive signs, the association of it to the Murine race seems natural enough. Its general likeness, for instance, to the *Rhizomys*, or bamboo rat, is very noticeable, particularly as the latter is apt to hide its tail. But a nice observer will at once mark the greater superior massiveness of the head in *Rhizomys*, together with the smaller eyes and ears, and will not be slow to refer these peculiarities to the highly fossorial habits of that genus.

Our present subject, which we shall name provisionally "*Nepalensis*," has a moderate hare-like head, but ears quite similar to those of the common rat, with the exception of that small internal process near the conch, which seems proper to the *Lagomides*. The ear is rather less than half the length of the head, is truncated, rounded, and nearly nude, except on the anterior and incurved edge of the helix, where very short hairs are pretty closely set. The upper and outer pair of front teeth have a very deep longitudinal groove, so as to look like four instead of two; but neither these nor the inferior pair are at all remarkable for size or strength, offering in this respect

\* This and the following notice are taken from the Journal of the Asiatic Society of Bengal, No. 35.



a strong contrast to *Rhizomys*. The inner pair of upper teeth are palpable, but minute. The whiskers are long and firm, reaching to the shoulders; the lips and the muzzle entirely furred; the eyes medial; the body full and cylindrical; no vestige of tail; the limbs short, but fine, and of nearly equal length and strength before and behind; pentadactylous before, tetradactylous behind; the nails acute; the soles fully clad, except the termino-digital balls, and a tiny carpal pad placed a little behind the elevated thumb. The last-named are the sole parts of the whole body which are denuded of fur. The fur of the animal is Leporine in the general character, but softer and more silky. It is of one sort, about an inch long, and of uniform structure throughout each pile, or hardly perceptible, harsher in its apical portion. On the head and limbs the fur is shorter, more adpressed, and less silky. The general colour internally is blue-black, but externally is deep bay from the snout to the mid-body, and black freckled with paler rufous thence to the vent. Below the chin and belly are pale bay, and the limbs are the same. There is a pale spot, or tuft rather, at the outer base of each ear, and the mustachio is half dark and half light.

The following specific character may, for the present, indicate the animal:—

*Lag. Nep.* with broad, rounded, nudish ears, nearly half the length of the head; soles nude on the termino-digital balls only, and soft equable fur, which is dark bay from the snout to waist, and rufescently freckled black thence to the vent; below and the limbs paler bay; snout to vent 7 inches; head 2; ears  $\frac{7}{8}$ ; palm (with nail)  $\frac{3}{4}$ ; planta (with nail)  $1\frac{1}{4}$ ; female similar, smaller,  $6\frac{1}{2}$  from snout to vent. Habitat, Himalaya of Nepal.

*Notice of a new form of the Glaucopinæ, or Rasorial Crows, inhabiting the Northern region of Nepal.* By B. H. Hodgson, Esq.

Amongst the very numerous forms\* presented by the 850 species of birds already known to me as inhabitants of Nepal, there is one which I believe to be still new to science, and to belong to a group, of the occurrence of which, either in these mountains or in the plains at their base, I know of no other instance, save that of the ubiquitous tree-magpies.

The group alluded to is the Glaucopin, or finch-billed crows of Swainson; and the single species I am acquainted with tenants exclusively the immediate neighbourhood of the perpetual snows.

In the lower and central regions our bird appears to be represented

\* One of the most remarkable of these is the Cochoa of Nepal, and which was characterized by me under that name in the Journal for June 1836. The expert naturalist would immediately perceive what my inexperience then noted not, viz. that this is a typical *ampeline* form, requiring to be placed between *Ampelis* and *Casmarhynchus*, though Swainson asserts that the group is exclusively American.

To this genus we have since given the classic name of *Proserpinia*. In the same number of the Journal is the description of another rarity, first discovered and described therein, and which Swainson has since called *Nyctiornis*. It is our *Bucia*, *hodie Napophilus*, a forest-haunting bee-eater. Mr. Swainson's name must merge in ours.

by the *Timaliæ* and *Crateropi*, to both of which, and especially to the former, it bears in much of its structure the same close resemblance that it does also in its manners; for all these birds alike have lax feeble plumage, short rounded wings, longish, broad, frail, subgradated tails, and very large, yet not typically, terrestrial feet, though the habits are essentially terrene and rasorial. But whereas the *Timaliæ* and *Crateropi* have a more or less meruline bill, slender, and provided with membraned and open nares, the present birds, which we shall denominate generically *Conostoma*, have the massive bill and simple concealed nares of the magpies. The bill of the *Crypsirinæ* vel *Dendrocittæ*, or tree-magpies in particular, has much resemblance to that of the *Conostomæ*, owing to the clear arcuation of its whole commissure, and to the perfect entireness of its tip. There are differences, however, between the two even in the bills, inasmuch as that of *Conostoma* is more compressed, with sides less tumid yet broader ridges; while in *Crypsirinæ* the other members, such as the long gradated tail, short tarsi, and considerably pointed wings, indicate habits less terrestrial than those of our bird. *Conostoma* is clearly a typical example of the *Glaucopinæ* of Swainson, and its natural position would seem to be between *Glaucopis* and *Crypsirinæ*. In manners the present species is a shy forester, adhering to the wilds, and tenanting the skirts of forests where brush-wood as well as trees abound. Five or six birds are usually found together, chattering, hopping and scraping on the ground, and resorting to the trees and shrubs chiefly for shelter. Their food is principally insects of the soft and imperfect kind in summer; but in winter they doubtless take some vegetable food. Their essential form may be characterized thus:—

Bill short, strong, conico-compressed, with broad rounded ridges and vertical sides; the culmen and commissure entirely arched; the tips equal, obtuse, and entire. Nostrils circular, unfossed, furnished with a membranous raised edge all round, and concealed by incumbent setaceous plumuli. Rictus provided with a close series of short bristles. Wings short, feeble, almost entirely rounded; the 6th, 7th and 8th quills usually equal and longest. Tail slightly elongated, rounded, consisting of twelve broad simple plumes. Feet very large and strong, yet not typically ambulatory. Tarsi elevate, nearly or quite smooth, exceeding much the central toe and nail. Toes medial, unequal; fores basally connected, and outer lateral considerably longer than the inner. Hind-toe large, depressed, exceeding the outer fore, and with its large nail reaching to the middle of the central toe and nail. Nails simple, large, scarcely so acute or so curved as in *Crypsirinæ*.

Habitat, the northern region close to the perpetual snows.

Type, *Conostoma Emodius*, Nob. new.

*Spec. Char.*—*Conostoma* with head, neck and body above dull olive-brown, clearest on the secondary alars; below paler, and passing into sordid slaty blue, which forms everywhere the interior colour of the plumage. Iris brownish. Bill dull orange. Legs slaty gray. Sexes alike. Bill to tail  $11\frac{1}{2}$  inches; bill  $\frac{7}{8}$ ; tail  $4\frac{7}{8}$ ; tarsus  $1\frac{11}{16}$ . Central toe and nail  $1\frac{4}{16}$ ; hind-toe and nail  $1\frac{2}{16}$ . Weight  $3\frac{1}{4}$  oz.

Mr. Henry Denny, the author of the valuable work on British *Anoplura* noticed in our last number, is desirous of being assisted in his further investigation of the subject, by being furnished with specimens of foreign Lice. He is also anxious to obtain specimens of Intestinal Worms, as he is collecting materials for a Manual of British Entozoa. In a note which we have received from him he remarks :—" If persons possessing specimens of any of these animals obtained from British fishes, quadrupeds or birds, &c., would send me word what they had, I should know whether it would be necessary to forward them for drawing. They can be easily sent by letter; and it is not from recent 'birds, &c. alone that they are to be procured, but upon skins sent from abroad; they may frequently be obtained, sticking to the feathers either under the wings or at the base of the beak: any of these, I need scarce say, would be of great service to me; each, however, must have the *name* of the *bird*, &c. put upon the pill-box or scrap of paper in which they are placed."

METEOROLOGICAL OBSERVATIONS FOR JULY 1842.

*Chiswick*.—July 1. Heavy rain: fine. 2, 3. Very fine. 4. Densely overcast. 5. Dry and windy: showery: clear and fine. 6. Very fine. 7. Overcast: rain. 8. Cloudy: heavy rain at night. 9—11. Fine. 12—14. Cloudy and fine. 15. Fine: dry haze. 16. Dry and clear. 17. Slight haze. 18. Sultry. 19. Slight rain. 20. Fine: showery. 21. Densely overcast. 22, 23. Very fine. 24. Cloudless and hot. 25, 26. Very fine. 27. Slight rain in the morning: lightly overcast and fine. 28. Thunder-storm early in the morning, most violent between five and six A.M.: sultry: cloudy and fine. 29. Densely clouded: clear at night. 30. Cloudy: fine. 31. Cloudy and fine: clear at night.

*Boston*.—July 1. Rain: rain early A.M. 2. Fine: stormy, with rain, thunder and lightning P.M. 3. Fine: rain P.M. 4. Cloudy. 5. Stormy. 6. Windy. 7. Fine. 8. Fine: rain P.M. 9—12. Fine. 13. Cloudy: three o'clock thermometer 76°. 14—16. Fine. 17. Cloudy. 18. Fine. 19. Cloudy. 20, 21. Cloudy: rain early A.M. 22. Cloudy: rain P.M. 23. Cloudy. 24. Fine: twelve o'clock thermometer 78°. 25. Cloudy. 26. Fine. 27. Fine: rain P.M. 28. Fine. 29. Cloudy: rain early A.M. 30. Windy. 31. Cloudy.

*Sandwick Manse, Orkney*.—July 1, 2. Cloudy. 3. Cloudy: clear. 4. Cloudy: rain. 5. Cloudy: showers. 6. Cloudy. 7. Clear: cloudy. 8. Rain: fine. 9. Bright: drops. 10. Bright. 11. Cloudy: rain. 12. Bright and warm. 13. Damp: showers. 14. Showers. 15. Cloudy: drizzle. 16. Clear. 17. Clear: cloudy. 18. Bright: cloudy. 19. Clear: cloudy. 20. Clear: fog. 21—23. Cloudy. 24. Cloudy: damp. 25. Cloudy. 26, 27. Bright. 28. Showers. 29. Cloudy. 30, 31. Cloudy: damp.

*Applegarth Manse, Dumfries-shire*.—July 1. Showers. 2. Wet nearly all day. 3, 4. Showery. 5. Rain and wind. 6. Fair and fine. 7—11. Heavy showers. 12. Fair and fine. 13. Showery. 14. Fair and fine. 15. Very fine. 16. Very fine: thunder. 17. Very fine, but cloudy. 18. Showers. 19—21. Fair and fine. 22—24. Very fine. 25. Very fine: sultry. 26. Very fine: cloudy. 27. Cool and cloudy. 28. Cool but fine. 29. Cloudy and threatening. 30, 31. Very fine.

Sun shone out 30 days. Rain fell 12 days. Thunder 1.

Wind North-north-east 1 day. North-east 2 days. East 4 days. South-east 1 day. South-south-east 1 day. South 4 days. South-west 1 day. West-south-west 2 days. West 9 days. West-north-west 1 day. North-west 3 days. North-north-west 2 days.

Calm 13 days. Moderate 8 days. Brisk 6 days. Strong breeze 3 days. Boisterous 1 day.

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| Mean temperature of the month .....    | 56°·95 |
| Mean temperature of July 1841 .....    | 54·35  |
| Mean temperature of spring-water ..... | 50     |



Meteorological Observations made at the Apartments of the Royal Society, London, by the Assistant Secretary, Mr. Robertson; by Mr. Thompson at the Garden of the Horticultural Society at CHISWICK, near London; by Mr. Veall, at BOSTON; by the Rev. W. Dunbar, at Applegarth Manse, DUMFRIES-SHIRE; and by the Rev. C. Clouston, at Sandwick Manse, ORKNEY.

| Days of Month. | Barometer. |        |         |        |                 |         |                       | Thermometer.          |            |                    |      |                       |                       |       |                 | Wind.             |                       |                       |                       | Rain.         |                        |           |         | London Dew-point.<br>F. 5. Lond. |                 |                   |                        |      |       |       |      |      |     |  |  |  |  |
|----------------|------------|--------|---------|--------|-----------------|---------|-----------------------|-----------------------|------------|--------------------|------|-----------------------|-----------------------|-------|-----------------|-------------------|-----------------------|-----------------------|-----------------------|---------------|------------------------|-----------|---------|----------------------------------|-----------------|-------------------|------------------------|------|-------|-------|------|------|-----|--|--|--|--|
|                | Chiswick.  |        | Boston. |        | Dumfries-shire. |         | Orkney, Sandwick.     | London: R. S.         |            | Chiswick.          |      | 8 $\frac{1}{2}$ a. m. | Max.                  | Min.  | Dumfries-shire. | Orkney, Sandwick. | 8 $\frac{1}{2}$ a. m. | 9 $\frac{1}{2}$ a. m. | 8 $\frac{1}{2}$ p. m. | London: R. S. | London: R. S. g. a. m. | Chiswick. | Boston. |                                  | Dumfries-shire. | Orkney, Sandwick. | London: R. S. g. a. m. |      |       |       |      |      |     |  |  |  |  |
|                | Max.       | Min.   | Max.    | Min.   | 9 a. m.         | 9 p. m. | 9 $\frac{1}{2}$ a. m. | 8 $\frac{1}{2}$ p. m. | F. 9 a. m. | Self-reg. Mx. Min. | Max. | Min.                  | 8 $\frac{1}{2}$ a. m. | Max.  | Min.            | Max.              | Min.                  | Max.                  | Min.                  | R. S.         | R. S. g. a. m.         | Chiswick. | Boston. |                                  | Dumfries-shire. | Orkney, Sandwick. | London: R. S. g. a. m. |      |       |       |      |      |     |  |  |  |  |
| 1842.          |            |        |         |        |                 |         |                       |                       |            |                    |      |                       |                       |       |                 |                   |                       |                       |                       |               |                        |           |         |                                  |                 |                   |                        |      |       |       |      |      |     |  |  |  |  |
| July.          |            |        |         |        |                 |         |                       |                       |            |                    |      |                       |                       |       |                 |                   |                       |                       |                       |               |                        |           |         |                                  |                 |                   |                        |      |       |       |      |      |     |  |  |  |  |
| 1.             | 29.814     | 29.849 | 29.737  | 29.719 | 29.19           | 29.72   | 29.62                 | 29.84                 | 29.74      | 51.3               | 70.0 | 52.3                  | 70                    | 50    | 53              | 65 $\frac{1}{2}$  | 47                    | 56                    | 52                    | w.            | W.                     | W.        | W.      | W.                               | W.              | W.                | W.                     | e.   | 111   | 198   | .05  | .111 | .57 |  |  |  |  |
| 2.             | 29.914     | 29.848 | 29.830  | 29.735 | 29.25           | 29.50   | 29.70                 | 29.74                 | 29.83      | 62.8               | 76.6 | 52.2                  | 69                    | 46    | 60              | 47 $\frac{1}{2}$  | 54                    | 51                    | 50                    | w.            | W.                     | W.        | W.      | W.                               | W.              | W.                | w.                     | w.   | .316  | .07   | .316 | .55  |     |  |  |  |  |
| 3.             | 30.034     | 29.961 | 29.826  | 29.732 | 29.32           | 29.78   | 29.86                 | 29.88                 | 29.86      | 68.8               | 77.6 | 52.0                  | 75                    | 55    | 59              | 60                | 46 $\frac{1}{2}$      | 54                    | 50                    | w.            | W.                     | W.        | W.      | W.                               | W.              | w.                | w.                     | ne.  | 213   | .06   | .213 | .57  |     |  |  |  |  |
| 4.             | 29.806     | 29.770 | 29.626  | 29.546 | 29.14           | 29.46   | 29.23                 | 29.70                 | 29.46      | 67.4               | 71.4 | 58.8                  | 76                    | 50    | 68              | 60                | 49                    | 48                    | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | e.                     | 100  | .06   | .100  | .59  |      |     |  |  |  |  |
| 5.             | 29.746     | 29.623 | 29.062  | 29.000 | 29.06           | 29.15   | 29.29                 | 29.08                 | 29.20      | 66.7               | 75.7 | 61.4                  | 70                    | 46    | 65              | 58 $\frac{1}{2}$  | 54                    | 60 $\frac{1}{2}$      | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .065 | .11   | .065  | .50  |      |     |  |  |  |  |
| 6.             | 30.136     | 30.161 | 30.103  | 30.046 | 29.52           | 29.80   | 29.57                 | 29.67                 | 29.06      | 62.3               | 79.4 | 52.4                  | 72                    | 40    | 60              | 61                | 46 $\frac{1}{2}$      | 50                    | 50                    | w.            | W.                     | W.        | W.      | W.                               | W.              | w.                | w.                     | n.   | .083  | ..... | .083 | .52  |     |  |  |  |  |
| 7.             | 30.150     | 30.009 | 29.826  | 29.757 | 29.84           | 29.57   | 29.05                 | 29.80                 | 29.80      | 63.2               | 73.7 | 52.3                  | 62                    | 50    | 62              | 58                | 41                    | 54 $\frac{1}{2}$      | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | n.                     | .022 | .09   | .022  | .55  |      |     |  |  |  |  |
| 8.             | 29.856     | 29.804 | 29.611  | 29.525 | 29.25           | 29.53   | 29.10                 | 29.61                 | 29.60      | 61.8               | 66.6 | 54.0                  | 66                    | 48    | 61.5            | 59                | 45                    | 53                    | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | e.                     | .041 | .43   | .041  | .56  |      |     |  |  |  |  |
| 9.             | 29.748     | 29.712 | 29.686  | 29.711 | 29.49           | 29.38   | 29.59                 | 29.47                 | 29.60      | 62.8               | 73.3 | 54.3                  | 72                    | 49    | 61              | 60                | 43                    | 57                    | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | e.                     | .102 | .03   | .102  | .58  |      |     |  |  |  |  |
| 10.            | 29.970     | 29.894 | 29.864  | 29.806 | 29.11           | 29.50   | 29.65                 | 29.41                 | 29.59      | 62.2               | 77.8 | 53.2                  | 73                    | 50    | 62              | 60                | 50                    | 58                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | s.                     | .116 | ..... | .116  | .58  |      |     |  |  |  |  |
| 11.            | 29.724     | 29.869 | 29.611  | 29.12  | 29.29           | 29.39   | 29.60                 | 29.50                 | 29.54      | 67.2               | 82.7 | 56.3                  | 78                    | 53    | 65              | 62                | 50                    | 58                    | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .072 | .02   | .072  | .61  |      |     |  |  |  |  |
| 12.            | 29.922     | 30.026 | 29.832  | 29.725 | 29.25           | 29.68   | 29.80                 | 29.71                 | 29.85      | 65.0               | 75.2 | 53.0                  | 75                    | 49    | 63              | 65                | 49                    | 56                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .038 | ..... | .038  | .59  |      |     |  |  |  |  |
| 13.            | 30.212     | 30.232 | 30.143  | 30.050 | 29.71           | 29.95   | 29.68                 | 29.77                 | 29.68      | 66.5               | 76.2 | 57.3                  | 73                    | 48    | 61              | 65                | 54                    | 57                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .072 | ..... | .072  | .60  |      |     |  |  |  |  |
| 14.            | 30.432     | 30.337 | 30.300  | 30.271 | 30.10           | 30.20   | 30.30                 | 30.03                 | 30.30      | 63.2               | 76.3 | 55.0                  | 76                    | 45    | 65              | 60                | 50                    | 56                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .60  |      |     |  |  |  |  |
| 15.            | 30.468     | 30.388 | 30.252  | 30.232 | 30.24           | 30.20   | 30.23                 | 30.30                 | 30.30      | 64.3               | 76.3 | 56.0                  | 74                    | 46    | 61              | 68                | 45                    | 54 $\frac{1}{2}$      | s.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .60  |      |     |  |  |  |  |
| 16.            | 30.520     | 30.175 | 30.003  | 30.065 | 30.10           | 30.06   | 30.22                 | 30.13                 | 30.23      | 73.2               | 73.2 | 54.6                  | 75                    | 55    | 63.5            | 72                | 49                    | 62                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .60  |      |     |  |  |  |  |
| 17.            | 29.978     | 29.894 | 29.789  | 29.48  | 29.87           | 29.86   | 30.06                 | 30.06                 | 30.13      | 62.0               | 74.6 | 57.3                  | 75                    | 52    | 62              | 62                | 49                    | 62                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .60  |      |     |  |  |  |  |
| 18.            | 29.866     | 29.993 | 29.922  | 29.28  | 29.80           | 29.80   | 30.04                 | 30.11                 | 30.11      | 67.2               | 75.6 | 59.7                  | 81                    | 57    | 69              | 69                | 50                    | 53                    | e.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | e.                     | .036 | .02   | .036  | .59  |      |     |  |  |  |  |
| 19.            | 29.886     | 29.842 | 29.754  | 29.26  | 29.83           | 29.78   | 30.12                 | 30.12                 | 30.12      | 64.3               | 77.8 | 62.0                  | 73                    | 52    | 69              | 64                | 54 $\frac{1}{2}$      | 58                    | 54                    | e.            | W.                     | W.        | W.      | W.                               | W.              | w.                | w.                     | se.  | .083  | ..... | .083 | .61  |     |  |  |  |  |
| 20.            | 29.790     | 29.735 | 29.690  | 29.13  | 29.75           | 29.76   | 30.04                 | 30.01                 | 30.01      | 64.7               | 71.0 | 57.3                  | 73                    | 50    | 60              | 60                | 50                    | 56                    | e.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .038 | .12   | .038  | .60  |      |     |  |  |  |  |
| 21.            | 29.792     | 29.864 | 29.718  | 29.17  | 29.77           | 29.82   | 29.06                 | 30.04                 | 30.04      | 60.8               | 72.4 | 56.8                  | 65                    | 47    | 58.5            | 60                | 40                    | 44                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .61  |      |     |  |  |  |  |
| 22.            | 30.046     | 30.128 | 30.065  | 29.46  | 29.56           | 29.00   | 30.12                 | 30.20                 | 30.20      | 59.8               | 72.2 | 52.6                  | 66                    | 46    | 55              | 60                | 43                    | 53                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .025 | .02   | .025  | .54  |      |     |  |  |  |  |
| 23.            | 30.262     | 30.197 | 30.153  | 29.72  | 30.10           | 30.00   | 30.19                 | 30.13                 | 30.13      | 61.4               | 76.4 | 55.0                  | 70                    | 42    | 56              | 73                | 43                    | 53                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .58  |      |     |  |  |  |  |
| 24.            | 30.180     | 30.118 | 29.927  | 29.58  | 30.01           | 29.92   | 30.07                 | 30.06                 | 30.06      | 63.4               | 79.7 | 53.7                  | 84                    | 49    | 66              | 73                | 43                    | 53                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .04  | ..... | .04   | .52  |      |     |  |  |  |  |
| 25.            | 30.065     | 29.902 | 29.812  | 29.48  | 29.90           | 29.91   | 30.02                 | 30.05                 | 30.05      | 64.7               | 76.3 | 52.4                  | 77                    | 43    | 63              | 68                | 51                    | 58                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .083 | ..... | .083  | .58  |      |     |  |  |  |  |
| 26.            | 30.016     | 30.066 | 29.967  | 29.48  | 29.90           | 29.90   | 30.07                 | 30.15                 | 30.15      | 70.7               | 72.7 | 52.4                  | 77                    | 43    | 65              | 66                | 51 $\frac{1}{2}$      | 58                    | 54 $\frac{1}{2}$      | e.            | W.                     | W.        | W.      | W.                               | W.              | w.                | w.                     | se.  | .02   | ..... | .02  | .53  |     |  |  |  |  |
| 27.            | 30.212     | 30.156 | 30.106  | 29.60  | 30.08           | 30.08   | 30.10                 | 30.10                 | 30.10      | 67.4               | 70.3 | 56.8                  | 75                    | 55    | 67              | 68                | 52                    | 56                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .050 | .56   | .050  | .59  |      |     |  |  |  |  |
| 28.            | 30.112     | 30.055 | 29.951  | 29.51  | 29.98           | 29.88   | 30.02                 | 30.03                 | 30.03      | 61.3               | 70.3 | 56.3                  | 75                    | 55    | 65              | 64                | 48                    | 56 $\frac{1}{2}$      | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .001 | .03   | .001  | .60  |      |     |  |  |  |  |
| 29.            | 29.910     | 29.987 | 29.851  | 29.33  | 29.98           | 29.98   | 30.02                 | 30.02                 | 30.02      | 57.0               | 71.6 | 52.4                  | 65                    | 45    | 60              | 66                | 47                    | 52                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .205 | ..... | .205  | .53  |      |     |  |  |  |  |
| 30.            | 30.082     | 30.064 | 30.018  | 29.52  | 30.00           | 29.98   | 30.06                 | 30.11                 | 30.11      | 63.4               | 76.4 | 50.4                  | 65                    | 52    | 56              | 65                | 48                    | 53                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .150 | ..... | .150  | .52  |      |     |  |  |  |  |
| 31.            | 30.186     | 30.224 | 30.127  | 29.65  | 30.10           | 30.12   | 30.12                 | 30.23                 | 30.23      | 57.8               | 64.5 | 55.7                  | 68                    | 47    | 59              | 69                | 55                    | 57                    | w.                    | W.            | W.                     | W.        | W.      | W.                               | w.              | w.                | se.                    | .005 | .06   | .005  | .53  |      |     |  |  |  |  |
| Mean.          | 30.016     | 30.002 | 29.878  | 29.39  | 29.771          | 29.812  | 29.898                | 29.916                | 29.916     | 62.1               | 73.5 | 55.5                  | 72.29                 | 49.32 | 62.1            | 64.7              | 48.7                  | 56.01                 | 52.77                 | Sum.          | 1.937                  | 1.92      | 3.57    | 3.55                             | 1.88            | Mean.             | 58                     |      |       |       |      |      |     |  |  |  |  |